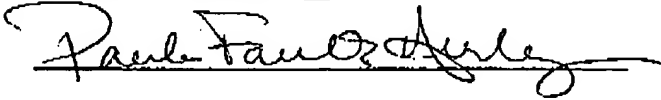


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to the United States Patent and Trademark Office at Fax No.  
703.872.9306 on December 21, 2004.



Atty Docket No.: HBES 1035-1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Richard A. Mann

Application No.: 09/935,231

Filed: August 22, 2001

Title: **Semiconductor Device for Isolating a  
Photodiode to Reduce Junction Leakage  
and Method of Formation**

Group Art Unit: 2815

Examiner: Edward Joseph  
Wojciechowicz**CUSTOMER NO. 49413****POWER OF ATTORNEY BY ASSIGNEE TO EXCLUSION OF INVENTOR  
UNDER 37 C.F.R. § 3.71 WITH REVOCATION OF PRIOR POWERS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The undersigned ASSIGNEE of the entire interest in the above-identified application for  
letters patent hereby appoints:

Mark A. Haynes	-	Reg. No. 30,846
Ernest J. Beffel, Jr.	-	Reg. No. 43,489
Warren S. Wolfeld	-	Reg. No. 31,454
James F. Hann	-	Reg. No. 29,719
Bill Kennedy	-	Reg. No. 33,407
Kenta Suzue	-	Reg. No. 45,145

to prosecute this application and transact all business in the United States Patent and  
Trademark Office in connection therewith and hereby revokes all prior powers of attorney  
said appointment to be to the exclusion of the inventors and the inventors' attorneys in  
accordance with the provisions of 37 C.F.R. §3.71.

The following evidentiary documents are in the chain of title from the original owner to the Assignee:

- XX the Assignment recorded beginning at reel/frame number 012114/0577 on August 22, 2001.
- XX the Assignment recorded beginning at reel/frame 013496/0589 on August 14, 2002.
- XX a copy of an Assignment attached hereto, which Assignment previously has been forwarded to the Patent and Trademark Office for recording.

Pursuant to 37 C.F.R. § 3.73(b) the undersigned Assignee hereby certifies that, to the best of Assignee's knowledge and belief, title is in the identified Assignee.

Direct all telephone calls to ERNEST J. BEFFEL, JR., ESQ. at (650) 712-0340.

Address all correspondence to:

**Customer Number 49413**

HAYNES BEFFEL & WOLFELD LLP  
P.O. Box 366  
Half Moon Bay, CA 94019  
(650) 712-0340 (phone)  
(650) 712-0263 (fax)

ESS TECHNOLOGIES INTERNATIONAL, INC.,  
Assignee

Dated: December 20, 2004

By: 

Name: James B. Boyd  
Title: CFO and Senior Vice President

PATENT  
Docket No. 37213-00000

## ASSIGNMENT FOR PATENT

## WHEREAS:

Pictos Technologies, Inc. a corporation organized and under the laws of the State of Delaware, having the address of 4311 Jamboree Road Newport Beach, CA 92660

(hereinafter referred to as ASSIGNOR(S)), owns an interest in, to and under inventions listed in Appendix A, and in, to and under Letters Patent or similar legal protection to be obtained therefore in the United States and in any and all foreign countries for which applications for Letters Patent of the United States have been filed on dates listed in Appendix A, and

## WHEREAS:

ESS Technologies International, Inc., a corporation organized and under the laws of the Cayman Islands having a place of business at 48401 Fremont Blvd. Fremont, CA 94538

(hereinafter referred to as ASSIGNEE), is desirous of acquiring ASSIGNOR'S entire interest in, to and under said inventions and in, to and under Letters Patent or similar legal protection to be obtained therefore in the United States and in any and all foreign countries.

## NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN:

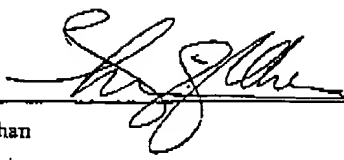
Be it known that in consideration of good and valuable consideration, the receipt of which is hereby acknowledged, ASSIGNOR(S) hereby sells, assigns and transfers to ASSIGNEE, its successors, legal representatives and assigns, the full and exclusive right, title and interest to said discoveries or inventions in the United States and its territorial possessions and in all foreign countries and to all Letters Patent or similar legal protection in the United States and its territorial possessions and in any and all foreign countries to be obtained for said invention by said application or any continuation, division, renewal, substitute or reissue thereof or any legal equivalent thereof in a foreign country for the full term or terms for which the same may be granted.

I, SAID ASSIGNOR(S), hereby authorize and request the Commissioner of Patents and Trademarks of the United States of America and any Official of any country or countries foreign to the United States of America whose duty it is to issue Letters Patent on applications as aforesaid, to issue all such Letters Patent for said discoveries or inventions to the ASSIGNEE, as assignee of the entire right, title and interest in, to and under the same, for the sole use and behalf of the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

I, SAID, ASSIGNOR(S), hereby covenant that I have full right to convey the entire right, title and interest herein sold, assigned, transferred and set over;

AND I, SAID ASSIGNOR(S) hereby further covenant and agree that the ASSIGNEE, its successors, legal representatives, or assigns, may apply for foreign Letters Patent on said discoveries or inventions and claim the benefits of the International Convention, and that I will, at any time, when called upon to do so by the ASSIGNEE, its successors, legal representatives, or assigns, communicate to the ASSIGNEE, its successors, legal representatives, or assigns, as the case may be, any facts known to me respecting said discover or invention, and execute and deliver and all lawful papers that may be necessary or desirable to perfect the title to the said discoveries or inventions, the said applications and the said Letters Patent in the ASSIGNEE, its successors, legal representatives and assigns, and that it reissues of the said Letters Patent or disclaimers relating thereto, or divisions, continuations, or re-filings of the said applications, or any thereof, shall hereafter be desired by the ASSIGNEE, its successors, legal representatives, or assigns, sign all lawful papers, make all rightful oaths, execute and deliver all such disclaimers and all divisional, continuation and reissue applications so desired, and do all lawful acts requisite for the application for such reissues and the procuring thereof and for the filing of such disclaimers and such applications, and generally do everything possible to aid the ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said invention or discover in all countries, and without further compensation but at the expense of the ASSIGNEE, its successors, legal representatives and assigns.

Docket No. 37213-00000

Assignor's signature: 

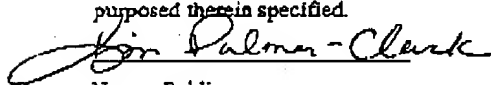
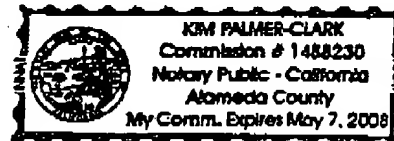
Fred S.L. Chan

Citizenship: USAIN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal this 25 day of June, 2004STATE OF California

ss.:

COUNTY OF Alameda

On this 25 day of June, 2004 before me, the undersigned authority, personally appeared to me known and known to me to be the individual who is described in and who executed the foregoing Assignment, and who duly acknowledged to me that he executed the same as his own voluntary act and deed for the uses and purposes therein specified.

  
Notary Public

## ATTACHMENT A

## GROUP 1

Issued Patents
5,381,054
5,440,079
5,502,299
5,572,074
5,572,643
5,706,369
5,892,540
5,929,434
5,932,875
6,040,567
6,153,955
6,256,350
6,271,884
6,305,853
6,437,826
6,441,453
6,441,857
6,462,781
6,486,522
6,493,030
6,498,331
6,507,384
6,532,040
6,534,796
6,535,247
6,563,363
6,580,456
6,587,142
6,593,607
6,597,394
6,617,562
6,639,204
6,677,996
6,697,111
6,744,032

## GROUP 2

Patent Applications
09/034,819
09/062,343
09/188,831
09/188,871
09/188,996
09/268,913
09/371,491
09/407,395
09/407,501
09/407,556
09/408,198
09/408,919
09/410,210
09/468,696
09/538,889
09/557,454
09/672,987
09/676,538
09/676,551
09/676,998
09/677,227
09/679,854
09/680,036
09/680,037
09/731,640
09/733,788
09/742,786
09/795,033
09/801,401
09/815,584
09/823,941
09/852,397
09/882,576
09/935,213
09/935,231

**ATTACHMENT A CONTINUED**

09/949,688
09/977,444
10/016,713
10/057,731
10/072,345
10/102,042
10/102,105
10/102,410
10/113,545
10/119,982
10/136,268
10/136,413
10/293,510
60/376,690
60/376,748
60/376,750
60/376,751

## APPENDIX A

### ISSUED PATENTS

Patent No.	Title	Inventor	Reel/ Frame No.	Date of Registration
5,381,054	Multiple input comparator circuit for a switched resistive network	Standley; David L	013699/0267	01/29/2003
5,440,079	Object-background discrimination using analog VLSI circuit	Mathur , et al.	013699/0267	01/29/2003
5,502,299	Current ratio circuit for multi-color imaging	Standley; David L.	013699/0267	01/29/2003
5,572,074	Compact photosensor circuit having automatic intensity range control	Standley; David L.	013699/0267	01/29/2003
5,572,643	Web browser with dynamic display of information objects during linking	Judson; David H.	011911/0220 (ZING)	06/19/2001
5,706,369	Base-n resolution converter	Wang , et al.	013699/0267	01/29/2003
5,892,540	Low noise amplifier for passive pixel CMOS imager	Kozlowski , et al.	013699/0267	01/29/2003
5,929,434	Ultra-low noise high bandwidth interface circuit for single-photon readout of photodetectors	Kozlowski , et al.	013699/0267	01/29/2003
5,932,875	Single piece integrated package and optical lid	Chung , et al.	013699/0267	01/29/2003
6,040,567	Method and device for controlling fast periodic motion	Neher , et al.	013496/0589	08/14/2002
6,153,955	Implementing comprehensive PID engine with single bit adder	Cheung , et al.	013496/0589	08/14/2002
6,256,350	Method and apparatus for low cost line-based video compression of digital video stream data	Bishay , et al.	013496/0589	08/14/2002
6,271,884	Image flicker reduction with fluorescent lighting	Chung , et al.	013496/0589	08/14/2002

Patent No.	Title	Inventor	Reel/ Frame No.	Date of Recordation
6,305,853	Camera utilizing film and reflective imager	Bishay , et al.	013496/0589	08/14/2002
6,437,826	Digital video teleconferencing camera system having a base	Arnold; Thomas A.	013209/0732	08/22/2002
6,441,453	Clear coating for digital and analog imagers	Tindle; Gary D.	011805/0861 (CONEXANT)	05/09/2001
6,441,857	Method and apparatus for horizontally scaling computer video data for display on a television	Wicker , et al.	013496/0589	08/14/2002
6,462,781	Foldable teleconferencing camera	Arnold; Thomas A.	013209/0732	08/22/2002
6,486,522	Light sensing system with high pixel fill factor	Bishay , et al.	013496/0589	08/14/2002
6,493,030	Low-noise active pixel sensor for imaging arrays with global reset	Kozlowski , et al.	013496/0589	08/14/2002
6,498,331	Method and apparatus for achieving uniform low dark current with CMOS photodiodes	Kozlowski , et al.	013496/0589	08/14/2002
6,507,364	Edge-dependent interpolation method for color reconstruction in image processing devices	Bishay , et al.	012273/0217 (CONEXANT)	11/05/2001
6,532,040	Low-noise active-pixel sensor for imaging arrays with high speed row reset	Kozlowski , et al.	012273/0217 (CONEXANT)	11/05/2001
6,534,796	Integrated circuit optics assembly unit	Bishay , et al.	013496/0589	08/14/2002
6,535,247	Active pixel sensor with capacitorless correlated double sampling	Kozlowski , et al.	013496/0589	08/14/2002
6,563,363	Switched capacitor comparator network	Tay; Hiok-Nam	013851/0225	03/17/2003
6,580,456	Programmable timing generator	Jacobs; William S.	009594/0366 (SIERRA IMAGING)	11/09/1998
6,587,142	Low-noise active-pixel sensor for imaging arrays with high speed row reset	Kozlowski , et al.	013496/0589	08/14/2002



Patent No.	Title	Inventor	Reel/Frame No.	Date of Recordation
6,593,607	Image sensor with enhanced blue response and signal cross-talk suppression	Hsieh; Blay-Cheng	013496/0589	08/14/2002
6,597,394	Programmable image transform processor for digital image processing	Duncan , et al.	009591/0524 (SIERRA IMAGING)	11/09/1998
6,617,562	CMOS imager with discharge path to suppress reset noise	Mann; Richard A.	011232/0239 (CONEXANT)	10/05/2000
6,639,204	Solid state color imager and method of manufacture	Mann; Richard A.	013851/0225	03/17/2003
6,677,996	Real time camera exposure control	Chung , et al.	013496/0589	08/14/2002
6,697,111	Compact low-noise active pixel sensor with progressive row reset	Kozlowski , et al	013851/0225	03/17/2003
6,744,032	Arrangement of microlenses in a solid state image sensor for improving signal to noise ratio	Tay; Hiok-Nam	013851/0225	03/17/2003
6,617,562	CMOS imager with discharge path to suppress reset noise	Mann; Richard A.	011232/0239	10/05/2000

### PATENT APPLICATIONS

Application No.	Title	Inventor	Reel/Frame No.	Date of Recordation
09/034,819	Method and apparatus for compensating for geometric distortion caused by a lensing system in a digital image detector	Pine, Joshua I.	010885/0931	06/02/2000
09/062,343	CMOS imaging apparatus	Ferry et al.		04/17/1998 (filed)

Application No.	Title	Inventor	Reel/Frame No.	Date of Recordation
09/268,913	Low noise CMOS active-pixel sensor for imaging arrays with high speed global or row reset	Kozlowski et al.		03/16/1999 (filed)
09/371,491	Imager with orientation correction capabilities	Pine, Josh I.	013496/0589	08/14/2002
09/407,395	Color imager without filter	Bishay et al.		9/28/1999 (filed)
09/407,501	An integrated camera module	Bishay et al.	013496/0589	08/14/2002
09/407,556	Hybrid multiple sensor device	Bishay et al.	013496/0589	08/14/2002
09/408,198	Infrared communication system utilizing receiver with multiple photo-sensors	Chung, Randall M.	013496/0589	08/14/2002
09/410,210	Active pixel sensor with multiplexed photosensing elements readout scheme	Hsieh, Biay-Cheng		09/30/1999 (filed)
09/538,889	Automatic gain control algorithm for pc-based video camera	Dong, Blake, M.	013496/0589	08/14/2002
09/557,454	CMOS JFET amplified pixel	Kozlowski et al.	013496/0589	08/14/2002
09/672,987	Selectable resolution image capture system	Pine, Joshua I.	013496/0589	08/14/2002
09/676,538	Combined digital image across talk correction and interpolation	Najand, Shahriar	011178/0767	09/29/2000
09/676,551	NO FILE			
09/676,998	Exposure control in electromechanical imaging devices	Pine, Joshua I.	013496/0589	08/14/2002
09/677,227	NO FILE			
09/679,854	NO FILE			
09/680,036	NO FILE			
09/731,640	Imaging system for minimizing pixel defects	Pine, Joshua I.	013496/0589	08/14/2002
09/733,788	Enhanced resolution mode using color image capture device	Pine, Joshua I.	013496/0589	08/14/2002

Application No.	Title	Inventor	Ref. Frame No.	Date of Recordation
09/742,786	Automatic detection and correction of pixel defects in solid state imagers	Pine, Joshua I.	013496/0589	08/14/2002
09/795,033	Imaging system having selectable interpolation processing	Pine, Joshua I.	013496/0589	08/14/2002
09/801,401	Imaging system having an image memory between the functional processing system	Pine, Joshua I.	013496/0589	08/14/2002
09/815,584	Imaging system having adaptive clocking in response to processing state	Pine, Joshua I.	013496/0589	08/14/2002
09/823,941	NO FILE			
09/852,397	Chip On Board (COB) package for CMOS Imager	Tindle et al.	013496/0589	08/14/2002
09/882,576	NO FILE			
09/935,213	NO FILE			
09/935,231	Semiconductor device for isolating a photodiode to reduce junction leakage and method of formation	Mann, Richard A.	013851/0225	03/17/2003
09/949,688	Off-grid interpolation in image processing	Bao et al.	013496/0589	08/14/2002
09/977,444	NO FILE			
10/016,713	Method and article of manufacture for micro-lens resulting from multi-stage fabrication technique.	Bencuya, Selim S.	014081/0620	05/16/2003
10/057,731	NO FILE			
10/072,345	Imaging system combining multiple still images for higher resolution image output	Pine, Joshua I.		10/25/2001 (filed)
10/102,042	Efficient implementation of a noise removal filter	Pan, Shien-Tai	103022/0288	06/24/2002
10/102,105	Image resolution conversion using pixel dropping	Bao et al.		03/20/2002 (filed)
10/102,410	NO FILE			
10/113,545	NO FILE			
10/119,982	Tapered threshold reset FET for CMOS imagers	Kozlowski et al.	013851/0225	03/17/2003

Application No.	Title	Inventor	Reel/Frame No.	Date of Recordation
10/136,268	NO FILE			
10/136,413	Suppressing radiation charges from reaching dark signal sensor	Mann et al.	013851/0225	03/17/2003
10/293,510	Semiconductor device for isolating a photodiode to reduce junction leakage and method of formation	Mann, Richard A	013851/0225	03/17/2003
60/376,690	NO FILE			
60/376,748	NO FILE			
60/376,750	NO FILE			
60/376,751	NO FILE			

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